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10/551,288

09/28/2005

George A. Brown

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EXAMINER

THOMPSON, KENNETH L

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/551,288  
Filing Date: September 28, 2005  
Appellant(s): BROWN, GEORGE A.

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Diana M. Sangalli  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1 October 2008 appealing from the Office action mailed 1 May 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,832,121	Anderson	05/1989
6497279	Williams et al.	12-2002

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson, U.S. 4,832,121.

Anderson discloses a shutting in after an initial injection (col. 8, lines 2-10) the formation (14) intersected by a wellbore (10), monitoring temperature with sensors (28) positioned above and within the formation; and injecting a subsequent treatment as the increased temperature formation fluid enters the wellbore while monitoring movement of the injection fluid in real time (col. 5, lines 10-16). Anderson discloses logging the temperature versus depth characteristics of the formation over time as an indication of the rate of increased fluid travel (col. 7, lines 26-31) downhole. Anderson discloses shutting in after an injection to determine fracture volume profile as a result of the temperature profile reaching equilibrium (col. 7, lines 43-47).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, U.S. 4,832,121 in view of Williams et al., U.S. 6,497,279.

Anderson discloses all the claimed limitations except for the use of fiber optics to determine temperature. Williams et al. teaches use of fiber optics to measure downhole temperatures. It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute one known sensor for another to yield a predictable result.

**(10) Response to Argument**

Applicants argue the prior art does not disclose observing temperature changes while injection is occurring.

The prior art monitoring is equated applicants step of “observing”. Monitoring and observing are synonyms and both require acts of “watching”, “taking note of”, etc., all within the scope their respective definitions. The prior art discloses column 1, lines 8-18 monitoring in real time changes in temperature during fracture treatment.

Applicants argue the prior art does not disclose observing or monitoring temperature of fluid that moves from an uphole section downward to the formation and across the formation.

The prior art discloses in figure 2 monitoring fluid temperature as it moves to and from the fracture in column 7, lines 52-56 which is commensurate with applicants fluid movement from uphole to the fracture. The prior art discloses in figure 1 fluid flowing down the tubing string past the sensors and across the formation.

Applicants argue the prior art does not disclose determining the inflow profile of the formation by measuring the injection rate of fluid at the surface because the prior art determine the formation characteristics based on temperature profiles observed during shut in wherein injection is not occurring.

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In figure 2, profiles 6-9 represent measured rate of fluid injected during injection, prior to shut in when no injection is occurring. The prior art disclose surface monitoring equipment for personnel monitoring and data recordation.

Applicants argue the prior art does not disclose a distributed array of optical fiber sensors.

The base reference Anderson discloses a distributed array of temperature sensors and does not disclose the sensors are fiber optic sensors. However the teaching reference, Williams discloses use of a fiber optic sensor array in a wellbore. The teaching reference is evidence that use of optical sensors is well known to one having ordinary skill in the art of wellbore exploration.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kenneth Thompson/  
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